

LOW PRESSURE FUEL EVAPORATIVE TEST Response to Workshop Questions

1. What model year vehicles will have to be tested?
1976 to 1995 model year vehicles will be tested.
2. Is the state proposing that the test be performed statewide?
Yes.
3. Would all stations have to obtain the equipment?
Yes.
4. Is the state proposing that a station purchase one tester for each analyzer?
No. Only one tester per station is required, regardless of the number of analyzers. However, stations may not share a single tester.
5. Is the state considering ways to help reduce initial investment cost?
Yes, the state is exploring the possibility of purchasing test equipment and leasing it to stations.
6. Can Nitrogen be used instead of shop air?
Yes. Due to industry concerns expressed at the LPFET Workshops, we understand that manufacturers will recommend the use of nitrogen rather than shop air. However, if nitrogen is used, it will increase the cost of the test by approximately 21cents per test (see question 48).
7. Can the BAR97 phone line be used?
No. A different phone line may be used, however it does not have to be a dedicated line.
8. Why isn't the equipment hooked up to the BAR97?
The tester is being introduced as a stand-alone device to avoid imposing additional costs to the stations. While the tester has been designed to communicate with the BAR97, to do so would require a BAR97 software update. No software update is being considered at this time. Any future software updates would have to be purchased by stations.
9. What is the duration of the warranty and what will it cover?
The test equipment manufacturers are being held to BAR specifications that require a one-year warranty covering defects in materials, software, and workmanship. The service requirements include delivery of a replacement unit within three (3) working days of a service call.

10. Will the state require service contracts on the equipment?
No.
11. Does the test equipment require periodic replacement of any parts?
Yes, nitrogen and filler neck adapter gaskets will require periodic replacement.
12. Will the industry be involved in the certification process?
Yes. The industry has been involved in preliminary hardware evaluation, in focus groups, and will be involved in future testing during the equipment certification process. Certification is the process by which the test equipment is evaluated prior to BAR approval.
13. How will the state ensure the tester performs reliably over time?
Thorough lab certification testing will be followed by beta testing at select stations for 10 weeks.
14. Will the testing equipment be subjected to testing at an independent lab prior to BAR certification?
Yes. Underwriters Laboratories (or equivalent) approval is required prior to BAR certification of the test equipment.
15. How will BAR deal with manufacturers whose equipment falls out of specification?
BAR continually works with equipment manufacturers to improve in-service performance, and to ensure equipment functions as required by specification standards.
16. Will the state allow stations to bypass the low-pressure test in the event the tester breaks?
No. All elements of the Smog Check test must be performed.
17. Will smoke generators be required?
No.
18. Why are there only two manufacturers?
To date, only two manufacturers have submitted equipment for evaluation.
19. Will BAR provide training?
Yes, although only minimal training will be required to perform the test. Equipment manufacturers will provide specific operating instruction in equipment manuals and through toll-free telephone support. In addition, BAR will provide a test procedure and a pinch point location guide, and the BAR ET help desk will assist with station calls.

20. Will technical assistance be provided during start up?
Yes. During implementation, the BAR ET Help Desk will be available after hours and on weekends.
21. Who will do repairs?
As with all Smog Check repairs, licensed Test and Repair Stations will complete any fuel evaporative system repairs.
22. What percent of the 1976 to 1995 model year vehicles are testable?
In nearly 1,500 fuel evaporative tests conducted during roadside inspections in 2005, BAR technicians found that the canister was accessible and they were able to crimp or plug the line in order to complete the test in about 91.8% of the fleet.
23. What percent of the fleet are included in the pinch point database?
According to the independent contractor that developed the database for BAR, about 85% of the 1976 to 1995 model year vehicles are included in the pinch point database, which illustrates the suggested crimping locations.
24. Will replacement parts be available for older vehicles?
The Air Resources Board (ARB) found the necessary parts for all but one vehicle that needed a replacement fuel filler neck. However, BAR found the replacement part for that vehicle by calling the parts locator number at 1-800-826-3566.
25. Which 1976 to 1995 model year vehicles would be exempt?
BAR will exempt those vehicles without evaporative systems as well as those that are un-testable.
26. When will there be a list of exempt vehicles?
Prior to implementation, BAR will create and distribute an exempt vehicle list and will continue to maintain the list on an ongoing basis.
27. Do I have to do this test if the vehicle fails a visual evaporative check?
No. This is a functional test that will be performed AFTER the vehicle passes the visual check.
28. How is the test to be performed on canisters with hard plastic lines?
Hard plastic lines can be disconnected and plugged instead of crimped.
29. Will a Test Only station be allowed to repair a hose if damaged during a test?
Yes. Current law allows Test Only stations to repair those components during the inspection at no charge to the customer.

30. Who pays for line breakage caused by conducting test?
As is currently done, the stations will continue to assume that responsibility.
31. Crimping may decrease the life of hoses. Have you considered the effects?
Yes. Specific pliers were selected to minimize hose damage, and testing shows the frequency of damage is extremely small.
32. How many hoses were broken as a result of test?
During the 1,500 roadside inspections conducted in 2005, only three (3) hoses were damaged. Trimming and re-attaching easily repaired the hoses.
33. What percent of the BAR roadside tested vehicles had bad evaporative canisters?
The low-pressure evaporative test will not identify bad evaporative canisters.
34. How was the \$161 average repair cost calculated?
The \$161 average repair cost estimate was provided by ARB in their November 29, 2005, report "*Environmental Impacts of Implementing a Low Pressure Evaporative Test in the California Smog Check Program.*" The report is on the ARB Web site (http://www.arb.ca.gov/msprog/smogcheck/evap_report.pdf) and explains how the repair cost was calculated.
35. What is the impact on the consumer?
The most important impact on consumers is that the emission reductions will improve air quality and reduce their health risks. Approximately 15% of consumers may have to pay more in order to repair failing vehicles, however the air quality and resulting health benefits easily outweigh the increased costs associated with the program. Repairs will also result in fuel savings. In addition, fuel leaks can be a safety hazard and repairing those vehicles will reduce the chance of vehicle damage or injury.
36. Will BAR notify the public of the new test?
Yes.
37. What is the impact on the current cost waiver and buy back programs?
There will be no impact on either the cost waiver or buy back programs. However, failing the low-pressure test will qualify the vehicle's owner for a cost waiver, repair subsidy or retirement, just like a failing tailpipe, gas cap, or visual inspection.
38. Will the CAP station reimbursement be adjusted?
No. Failures of the evaporative system already qualify a vehicle for the Consumer Assistance Program (CAP).

39. What will prevent fraud?

BAR's enforcement staff will monitor this new program element, and will periodically review multiple data sources, including audits and Quality Assurance Inspections.

40. If the purge part of the evaporative system is not tested, how can stations tell if the entire evaporative system is working after repairs to just the fuel lines and/or tank?

Low pressure testing checks for leaks between the filler neck and the canister. The ARB believes that the emission reductions from testing just this portion of the fuel evaporative system are currently adequate. We are not anticipating the use of purge testing at this time.

41. Explain the basis for deciding that half pound of pressure is sufficient for testing?

The USEPA recommended this amount of pressure in their I/M Program Guidance. In addition, it is believed that testing at higher pressures may cause system damage.

42. Can current test equipment be modified to perform the low-pressure test at a lower cost?

Unfortunately, no. The fuel cap tester and diagnostic tools, such as a smoke generator, are not capable of making a pass/fail decision at a 0.040 inch hole equivalent leak size and do not compensate for fuel vapor pressure effects.

43. What evaporative system repairs have been performed as a result of the low-pressure test in other states?

The state of Delaware has been performing the low-pressure test and has advised us that almost half the repairs are hose and tubing replacements. In addition, 50 percent of the failing vehicles diagnosed during testing by ARB required only hose or tubing replacement.

44. Has any analysis been done to determine the effect of the new test on station throughput?

Yes, the average low-pressure test time is 8 minutes and can be performed concurrently with other elements of the smog check inspection.

45. Does fuel come back out when testing vehicles with full tanks?

No. Test procedures and filler neck adapters are designed to minimize fuel discharge.

46. Does the test release more vapors into the atmosphere than can be recovered with repairs?

According to the ARB, the emissions reduction gained from finding and fixing a leak far exceed the small amount of vapors that might be lost during the test.

47. Please quantify vehicles that will be retiring in the next few years?

According to ARB's calculation the 1976 to 1995 model year fleet in 2005 was 9.1 million. The same fleet will decrease in size to 5.8 million by 2010.

48. Would there be additional equipment cost for nitrogen use and how would this cost affect the overall program cost effectiveness?

Yes, though the additional cost will be minor. Stations that do not currently use nitrogen would have to purchase or lease a cylinder, purchase a pressure regulator, and periodically refill their tanks. This would add no more than \$0.21 per test for Nitrogen.

Air Resources Board Response to Workshop Questions

1. How did ARB calculate the fleet evaporative hydrocarbons shown on the workshop pie chart?

Evaporative Emissions Estimation -- The Air Resources Board (ARB) estimates evaporative emissions in three categories: running losses, hot soaks, and diurnal/resting.

Running losses are evaporative emissions that emanate from hoses, fittings or canisters while the vehicle is being operated. This can either occur because fuel heating has caused the vapor generation rate to exceed the vehicle's capacity to control the vapors, or through permeation and leakage.

Hot soaks are evaporative emissions that occur immediately after a trip due to fuel heating when a hot engine is turned off. In older vehicles with carburetors, these emissions are attributed to boiling of the fuel in the carburetor float bowl. Newer vehicles experience these emissions from fuel remaining in the engine manifolds when the engine is turned off, or seepage of fuel from injectors when they get old. Additionally, fuel-injected vehicles return hot fuel back to the tank, and this becomes another potential source of hot soak emissions.

Diurnal emissions occur when rising ambient temperatures cause fuel evaporation from vehicles sitting throughout the day. Resting losses, like diurnal emissions, occur when a vehicle is sitting, but are caused by permeation through rubber or plastic components rather than normal daily temperature excursions.

Each year, the evaporative emissions from new and used vehicles are measured under carefully controlled testing conditions. This data is then applied to the statewide fleet for each model year vehicle, both new and used vehicles, using California's EMFAC motor vehicle emissions model. The evaporative emissions from an older vehicle will be more than the same vehicle in new condition due to deterioration.

Evaporative Emissions Due to Deterioration -- To estimate the calendar year 2010 gasoline-powered light-duty fleet's evaporative emissions due to deterioration, ARB used EMFAC to estimate the evaporative emissions from model year 1976 to 1995 vehicles under normal deterioration rates. ARB then used EMFAC to estimate the evaporative emissions from those same vehicles as if each vehicle were new (assuming no change in the overall number of miles traveled). The difference between these two calculations is considered excess emissions from deterioration.

2. How does the \$6,600 per ton justify implementation of the program that requires financial outlay by the Smog Check stations?

The cost-effectiveness of an air quality project is based on the amount of pollution it eliminates for each dollar spent. One benchmark used by ARB is the cost effectiveness threshold for projects under the Carl Moyer Program. To receive Moyer funding, a project cannot exceed a maximum cost effectiveness of \$14,300/ton. The cost effectiveness of \$6,688/ton for low pressure evaporative testing is well below this limit.

More information can be found in the ARB report ***Environmental Impacts of Implementing a Low Pressure Evaporative Test in the California Smog Check Program*** which can be found at http://www.arb.ca.gov/msprog/smogcheck/evap_report.pdf.